# Grade 3 Mathematics Instructional Materials Scoring Rubric

**Introduction:**

The following Instructional Materials Scoring Rubric for Mathematics is designed to score materials in the following categories:

- Instructional Focus
- Math Practices
- Aspects of Rigor
- Accessibility Features

**Scoring:**

Each section is to be scored using a 0, 1, or 2. For all sections, except for Rigor, use the following rubric when deciding on the appropriate rating:

- 0: The metric is not present within the material.
- 1: The metric is present within the material. The intent and/or frequency component of the metric is not fully met.
- 2: A rating of 2 indicates the metric is present and all aspects of the metric are fully met.

For Rigor:

- 0: The standard is not instructionally present within the material.
- 1: The standard is instructionally present but does not have an instructional focus on the indicated type of rigor.
- 2: The standard is instructionally present and has a clear instructional focus on the indicated type of rigor.

Note: Some standards appear under multiple aspects of rigor (i.e., Conceptual Understanding, Procedural Fluency, or Application). When scoring these standards, only score the part of the standard relevant to that aspect of rigor, which is identified by a bold, italics, larger font.

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**Gateway**: The publisher must provide a Tennessee standards alignment guide as a part of the scope and sequence for the material. If this gateway is not met, the materials will not be scored.

| Instructional Focus | | | | |
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| | **0** | **1** | **2** | **Evidence** |
| Connections to content from prior grades are clearly identified and explicitly related to grade-level work. | | | | |
| Materials embed a minimum of 3 tasks in every unit. Each task has multiple entry-points and can be solved using a minimum of 2 solution strategies and/or representations. | | | | |
| Materials give students opportunities to work problems within each lesson. Each problem set:<br>• Covers the full breadth of the standard(s) covered in the lesson<br>• Is aligned to on grade level expectations as identified in the standard(s) | | | | |
| Teacher resources indicate common student misconceptions in every unit and provide guidance on how to instructionally address the identified misconceptions. | | | | |
| Materials provide educative supports (e.g., adult level explanations of the standards and strategies) in every lesson for teachers to ensure standards are taught accurately and to the appropriate level of rigor (i.e., conceptual understanding, procedural fluency, and application) as indicated by the standards. | | | | |
| Materials develop student understanding of multiple representations (i.e., concrete, representational, abstract) for relevant standards which are identified in the state's Instructional Focus Documents. | | | | |
| Materials include problems and activities in every unit that connect two or more grade level standards in a domain (e.g., 3.MD.A.2 and 3.MD.B.3). | | | | |
| Materials include problems and activities in every unit that connect two or more grade level domains. (e.g., 3.MD.A1b and 3.OA.D.8) | | | | |
| Materials provide opportunities for students to participate in a spiraled review in every unit. | | | | |
| | | | Total | |

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| Mathematical Practices | | | | |
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| **Math Practices/Literacy Skills for Math Proficiency** | **0** | **1** | **2** | **Evidence** |
| Materials embed the eight math practice standards in every unit. | | | | |
| Math practice standards are clearly identified in both teacher and student materials. | | | | |
| Materials use appropriate math vocabulary which is aligned to the grade level standards. | | | | |
| Materials support students in discussing and articulating mathematical ideas. Within each lesson students either write or verbally justify their thoughts. | | | | |
| | | | Total | |

| Accessibility Features | | | | |
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| **Digital Materials** | **0** | **1** | **2** | **Evidence** |
| All lessons within the materials are available in digital form and include a printable option. | | | | |
| In every lesson, materials include recommended supports, accommodations, and modifications for Students with Disabilities and English Language Learners that will support their regular and active participation in accessing on grade level material (e.g., modifying vocabulary words within word problems, sentence starters, etc.). | | | | |
| | | | Total | |

| Aspects of Rigor | | | | |
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| **Conceptual Understanding: The materials support the intentional development of students' conceptual understanding of key mathematical concepts, especially where called for in specific content standards or clusters.** | **0** | **1** | **2** | **Evidence** |
| **3.OA.A.1** Interpret the factors and products in whole number multiplication equations. | | | | |

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| **3.OA.A.2** Interpret the dividend, divisor, and quotient in whole number division equations. | | | | |
| **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers within 100. | | | | |
| **3.OA.B.5** Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) | | | | |
| **3.OA.B.6** Understand division as an unknown-factor problem. | | | | |
| **3.OA.D.8** Solve two-step contextual problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. ***Assess the reasonableness of answers using mental computation and estimation strategies including rounding.*** | | | | |
| **3.OA.D.9** Identify patterns in a multiplication chart and explain them using properties of operations. *For example, in the multiplication chart, observe that 4 times a number is always even (because 4 x 6 = (2 x 2) x 6 = 2 x (2 x 6), which uses the associative property of multiplication) or, for example, observe that 6 times 7 is one more group of 7 than 5 times 7 (because 6 x 7 = (5 + 1) x 7 = (5 x 7) + (1 x 7), which uses the distributive property of multiplication over addition).* | | | | |
| **3.NBT.A.1** Round whole numbers to the nearest 10 or 100 using understanding of place value and use a number line to explain how the number was rounded. | | | | |
| **3.NF.A.1** Understand a unit fraction, *1/b*, as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a non-unit fraction, *n/b,* as the quantity formed by *n* parts of size *1/b*. | | | | |
| **3.NF.A.2** Understand a fraction as a number on the number line. Represent fractions on a number line. | | | | |
| **3.NF.A.2.A** Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. ***Recognize that each part has size 1/b and that the endpoint locates the number 1/b on the number line.*** | | | | |
| **3.NF.A.2.B** Represent a fraction *n/b* on a number line diagram by marking off *n* lengths *1/b* from 0. Recognize that the resulting interval has size *n/b* and that its endpoint locates the number *n/b* on the number line. | | | | |
| **3.NF.A.3** Explain equivalence of fractions and compare fractions by reasoning about their size. | | | | |
| **3.NF.A.3.A** Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line. | | | | |

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| **3.NF.A.3.B** Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3) ***and explain why the fractions are equivalent using a visual fraction model.*** | | | | |
| **3.NF.A.3.D** ***Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole.*** Use the symbols >, =, or < to show the relationship and justify the conclusions. | | | | |
| **3.MD.A.2** Measure the mass of objects and liquid volume using standard units of grams (g), kilograms (kg), milliliters (ml), and liters (l). ***Estimate the mass of objects and liquid volume using benchmarks.*** | | | | |
| **3.MD.C.5** Recognize that plane figures have an area and understand concepts of area measurement. | | | | |
| **3.MD.C.5.A** Understand that a square with side length 1 unit, called "a unit square," is said to have "one square unit" of area and can be used to measure area. | | | | |
| **3.MD.C.5.B** Understand that a plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. | | | | |
| **3.MD.C.7** Relate area of rectangles to the operations of multiplication and addition. | | | | |
| **3.MD.C.7.C** Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and (b + c) is the sum of (a x b) and (a x c). Use area models to represent the distributive property in mathematical reasoning. | | | | |
| **3.MD.C.7.D** ***Recognize area as additive.*** Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems. | | | | |
| **3.G.A.1** ***Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.*** Recognize rhombuses, rectangles, and squares as examples of quadrilaterals and recognize examples of quadrilaterals that do not belong to any of these subcategories. | | | | |
| **3.G.A.2** Partition shapes into parts with equal areas. ***Recognize that equal shares of identical wholes need not have the same shape.*** Express the area of each part as a unit fraction of the whole. | | | | |
| **Procedural Skill and Fluency: The materials provide intentional opportunities for students to develop procedural skills and fluencies, especially where called for in specific content standards or clusters** | **0** | **1** | **2** | **Evidence** |
| **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the properties of operations or the relationship between multiplication and division | | | | |

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| (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8). By the end of 3rd grade, know all products of two one-digit numbers and related division facts. | | | | |
| **3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | | | | |
| **3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations. | | | | |
| **3.NBT.A.4** Read and write multi-digit whole numbers (less than or equal to 100,000) using standard form, word form, and expanded form (e.g., 23,456 can be written as 20,000 + 3,000 + 400 + 50 + 6). | | | | |
| **3.NF.A.2.A** ***Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts.*** Recognize that each part has size 1/b and that the endpoint locates the number 1/b on the number line. For example, on a number line from 0 to 1, students can partition it into 4 equal parts and recognize that each part represents a length of 1/4 and the first part has an endpoint at 1/4 on the number line. | | | | |
| **3.NF.A.3.B** ***Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3)*** and explain why the fractions are equivalent using a visual fraction model. | | | | |
| **3.NF.A.3.C** Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers. | | | | |
| **3.NF.A.3.D** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. ***Use the symbols >, =, or < to show the relationship and justify the conclusions.*** | | | | |
| **3.MD.A.1.A** ***Tell and write time to the nearest minute and measure time intervals in minutes.*** Solve contextual problems involving addition and subtraction of time intervals in minutes. | | | | |
| **3.MD.A.2** ***Measure the mass of objects and liquid volume using standard units of grams (g), kilograms (kg), milliliters (ml), and liters (l).*** Estimate the mass of objects and liquid volume using benchmarks. | | | | |
| **3.MD.B.3** ***Draw a pictograph and a scaled bar graph to represent a data set with several categories.*** Solve one- and two-step "how many more" and "how many less" problems using information presented in graphs. | | | | |
| **3.MD.B.4** ***Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch***. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units: whole numbers, halves, or quarters. | | | | |

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| **3.MD.C.6** Measure areas by counting unit squares (square centimeters, square meters, square inches, square feet, and improvised units). | | | | |
| **3.MD.C.7.A** Find the area of a rectangle with whole-number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths. | | | | |
| **3.G.A.1** Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category. ***Recognize rhombuses, rectangles, and squares as examples of quadrilaterals and recognize examples of quadrilaterals that do not belong to any of these subcategories.*** | | | | |
| **3.G.A.2** ***Partition shapes into parts with equal areas***. Recognize that equal shares of identical wholes need not have the same shape. ***Express the area of each part as a unit fraction of the whole.*** | | | | |
| **3.G.A.**3 Determine if a figure is a polygon. | | | | |
| **Applications: The materials support the intentional development of students' ability to utilize mathematical concepts and skills in engaging applications, especially where called for in specific content standards or clusters.** | **0** | **1** | **2** | **Evidence** |
| **3.OA.A.3** Multiply and divide within 100 to solve contextual problems, with the unknown in any positions, in situations involving equal groups, arrays/area, and measurement quantities using strategies based on place value, the properties of operations, and the relationship between multiplication and division. | | | | |
| **3.OA.D.8** ***Solve two-step contextual problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity.*** Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | | | | |
| **3.MD.A.1** Solve contextual problems in time and money. | | | | |
| **3.MD.A.1.A** Tell and write time to the nearest minute and measure time intervals in minutes. ***Solve contextual problems involving addition and subtraction of time intervals in minutes.*** | | | | |
| **3.MD.A.1.B** Solve one-step contextual problems involving amounts less than one dollar including quarters, dimes, nickels, and pennies using the ¢ symbol appropriately. Solve contextual problems involving whole number dollar amounts up to $1000 using the $ symbol appropriately. | | | | |

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| **3.MD.B.3** Draw a pictograph and a scaled bar graph to represent a data set with several categories. ***Solve one- and two-step "how many more" and "how many less" problems using information presented in graphs.*** | | | | |
| **3.MD.B.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. ***Show the data by making a line plot, where the horizontal scale is marked off in appropriate units: whole numbers, halves, or quarters.*** | | | | |
| **3.MD.C.7.B** Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real-world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning. | | | | |
| **3.MD.C.7.D** Recognize area as additive. ***Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.*** | | | | |
| **3.MD.D.8** Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exploring rectangles with the same perimeter and different areas or with the same area and different perimeters. | | | | |
| | | | Total | |